Cadi.Sense

Wireless Thermometer

User Manual

v3.21.4
T-S1-800.900-I10-C02

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1. Introduction

1.1 Welcome message

Thank you for choosing the Cadi.Sense Wireless Thermometer. This thermometer allows you to monitor your loved ones' temperature without disturbing their rest and play.

Read this manual carefully and follow all instructions and warnings.

1.2 User manual version

- Version: C02
- Release date: June 10, 2014
- This user manual is subject to change or upgrade without notice.
- To view the latest user manual, go to www.cadisense.com.

1.3 Important safety information

- DO NOT use the Cadi.Sense or any electrical part that comes with the package if there is any visible damage.
- DO NOT force open or attempt to service the Cadi.Sense or any electrical part that comes with the package. If you encounter any technical problem, contact Technical Support.
- DO NOT use the Cadi.Sense on users who have an implanted cardiac device such as a pacemaker or an internal cardioverter-defibrillator (ICD). This is to avoid electromagnetic interference (EMI) between the ThermoSensor and the implanted device.
- DO NOT place the ThermoSensor or dressing over injured, broken, or scarred skin.
- DO keep the dressing and the ThermoSensor dry. This is because water trapped between the ThermoSensor and the skin or dressing may affect the temperature reading.
- DO NOT allow babies or young children to handle the loose or detached ThermoSensor, so as to prevent choking accidents.
- **The use of this product is not intended as a substitute for consultation with your doctor.**

1.4 Intended use

The Cadi.Sense wireless thermometer is intended for use in children for monitoring body temperature continuously and automatically.

1.5 Package contents

- **ThermoSensor (with storage case)**

- **SmartNode (plug)**

- **Stick-Ons (adhesive dressing)**

1.6 How does the Cadi.Sense work?

In the Cadi.Sense, skin temperature is measured at the lower abdomen by a wireless sensor called the ThermoSensor. The readings are sent wirelessly every 30 seconds to a receiver called the SmartNode and converted to an equivalent body temperature, which can be viewed via WiFi from a mobile device such as a smartphone.

1.7 Fever and normal body temperature

The body temperature of a person depends on where it is measured, how it is measured, when it is measured and how old the person is. In addition, the range of normal body temperature varies from person to person. Different methods of measuring body temperature generally give different readings and, therefore, different ranges of normal temperature. Temperatures measured with the Cadi.Sense are on average higher than armpit (axillary) temperatures but lower than ear temperatures*.

It is recommended that you determine your child's normal temperature when measured using the Cadi.Sense, by carrying out the measurement for at least 24 hours when the child is healthy. As a reference, a Cadi.Sense temperature above 37.8°C may suggest that your child has a fever. **However, do not self-diagnose but do consult your doctor for medical advice.**

*Ng K-G, Wong S-T, Lim S-M, Goh Z. Evaluation of the Cadi ThermoSENSOR wireless skin-contact thermometer against ear and axillary temperatures in children. *Journal of Pediatric Nursing* 2010; 25:176–186. [View abstract at http://www.ncbi.nlm.nih.gov/pubmed/20430278].

2. How to set up and use the Cadi.Sense

2.1 Overview

Before using the Cadi.Sense, you will need to do the following:

1. Set up the system for wireless access, by following the instructions in Sections 2.2, 2.3, 2.4, and 2.5.
2. Understand the LED indicators and Cadi.Sense icons, by reading Sections 2.6 and 2.7 respectively.
3. Know how to attach the ThermoSensor to the patient, by following the instructions in Section 2.8.
4. Know how to clean and store SmartNode and the ThermoSensor after each use, by reading Section 2.9.

2.2 Setup I – Performing a quick setup

This setup enables you to access temperature readings at home from a mobile device.

Step 1:

Get ready a mobile device (iPhone, Android phone, tablet, or laptop) and record the following information shown on your SmartNode plug:

SSID (e.g., CADI_XXXX): _____
PWD (8 chars): _____
SmartNode ID: _____

Step 2:

Plug in the SmartNode to a power socket in the **same room where the patient will be resting**. Then switch it on. *(Note: The SmartNode takes about 30 seconds to start up.)*

Step 3:

Turn on WiFi on your mobile device. Look for the above SmartNode SSID in the wireless network list. Then connect the mobile device to the SmartNode using the above password (PWD, 8 chars).

Note: Some mobile devices may ask for the "network key", which is the same as the password.

Step 4:

Go to your mobile device's web browser and enter

http://10.10.10.10

If Figure 1 appears, select your timezone and click "Save". Otherwise Figure 2 will appear. The quick setup is now done!

Note: After completing Setup I, you will need to proceed with Step II in order to access the Internet.

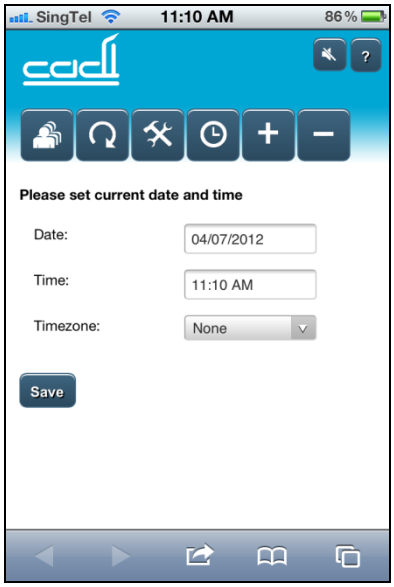


Figure 1.
Setting date, time, and timezone.

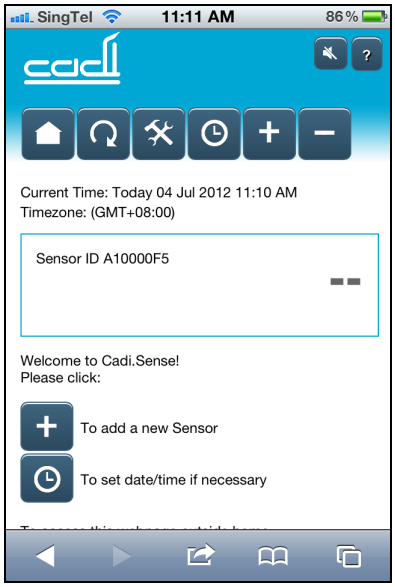


Figure 2.
Main page (sensor details).

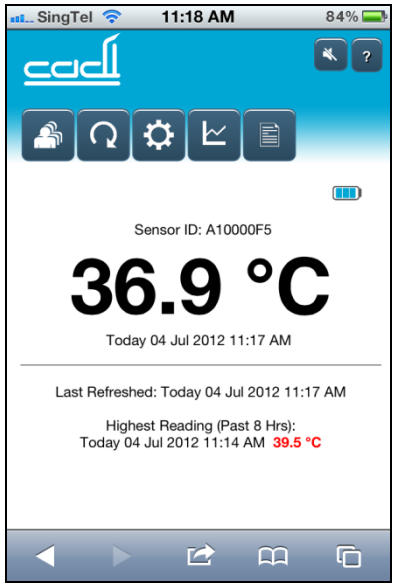

SingTel
11:18 AM
84%
Sensor ID: A10000F5
36.9 °C
Today 04 Jul 2012 11:17 AM
Last Refreshed: Today 04 Jul 2012 11:17 AM
Highest Reading (Past 8 Hrs):
Today 04 Jul 2012 11:14 AM 39.5 °C

Figure 3.
Home page (temperature monitoring).

Note: After you have set the date, time, and timezone, Figure 2 will appear. The sensor ID will be shown and the temperature will be displayed as "--" or "Lo". If the sensor is still in its storage case, the reading will be displayed as "--". If the sensor has been taken out from its storage case for more than 30 seconds, you may see "Lo" after clicking the "Refresh" icon . If you warm up the sensor by rubbing it in your hands for more than 1 minute and then click the "Refresh" icon, you may see a numerical temperature value. If you click the "Home page" icon , Figure 3 will appear.

2.3 Setup II – Setting up to access Cadi.Sense from outside your home

This setup enables you to connect your mobile device to the Internet, so that you can access temperature readings from outside your home via the Internet.

Requirements:

1. You must first complete Setup I in Section 2.2.
2. You will need to have a WiFi router that is already set up and connected to the Internet, and you will need to be physically at the place where your WiFi router is. You will also need to know **your WiFi router's SSID and password**. Check with your Internet service provider if you do not remember the SSID and/or password.

Step 1:

Click the "Advanced Settings" icon and Figure 4 will appear (if you cannot see the "Advanced Settings" icon, click the "Main Page" icon first). Click the "Connect to WiFi Router" icon. When a screen (see Figure 5) appears and asks "Please select your WiFi router", look for your router's SSID. If your router's SSID does not show up on the screen, click "Refresh" repeatedly until it appears. Then click your router's SSID, type in your router's password, and then click "Apply". Be patient as the SmartNode needs about 1 minute to connect to your WiFi router and about 1 minute to reboot.

Figure 4.
Advanced settings menu.

Figure 5.
Connecting to your WiFi router.

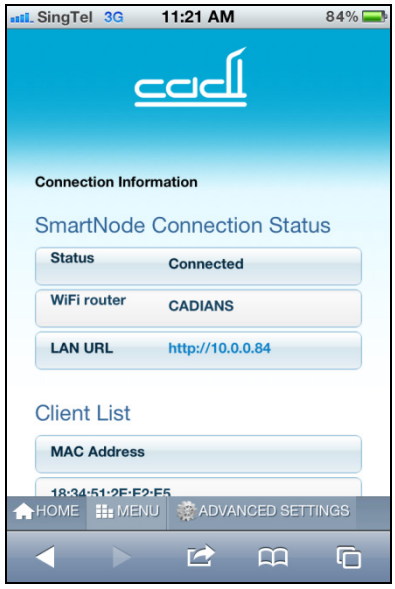


Figure 6.
Successful connection.

*If the connection is **successful**, the following text will appear: "SmartNode is now connected to xxxxxx. To access SmartNode, please go to www.cadisense.com or use the LAN URL. Please be patient as SmartNode needs about a minute to reboot." Figure 6 will then appear. However if the connection is **not successful**, the following text will appear: "Connection failed, please reboot SmartNode and try again".*

Note: After successful connection to your WiFi router, the SmartNode will remember your router's SSID and password, unless you have intentionally unmarked the default "Remember Settings" during the connection. Therefore, if you were to switch the SmartNode off and on again, it will automatically reconnect to your WiFi router in about 2 minutes.

Step 2:

After successful connection to your WiFi router, you may not be able to use "http://10.10.10.10" to access your SmartNode anymore, but you can still access it using the **LAN URL** displayed on the screen (in the example shown in Figure 6, the LAN URL is http://10.0.0.84). Record this LAN URL as you may need to use it later.

Step 3:

You may now use a mobile device (iPhone, Android phone, tablet or laptop) to access your Cadi.Sense from anywhere in the world! Go to "**www.cadisense.com**", and then click "Access Cadi.Sense". Type in your SmartNode ID (which can be found on your SmartNode; you should have written it in Step 1 of Section 2.2). The password is "**cadi**", and the default port is "**50000**". Then click "Login".

If your router is UPnP-enabled or if you have set up port forwarding (see Section 2.4), Figure 8 will appear, which means you are able to access SmartNode webpages as you would in Section 2.1. If Figure 8 does not appear, Figure 7 will appear.

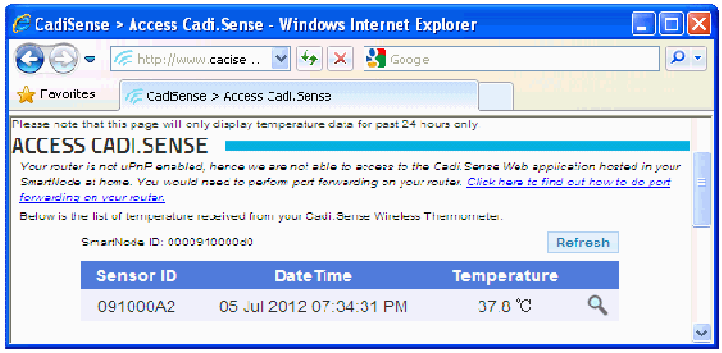

CadiSense > Access Cadi.Sense - Windows Internet Explorer
Favorites
CadiSense > Access Cadi.Sense
Please note that this page will only display temperature data for past 24 hours only.
ACCESS CADI.SENSE
Your router is not uPnP enabled, hence we are not able to access to the Cadi.Sense Web application hosted in your SmartNode at home. You would need to perform port forwarding on your router. Click here to find out how to do port forwarding on your router.
Below is the list of temperature received from your Cadi.Sense Wireless Thermometer.
SmartNode ID: 000091000d0
Refresh
Sensor ID
Date Time
Temperature
091000A2
05 Jul 2012 07:34:31 PM
37.8 ℃

Figure 7. Cadi.Sense page without UPnP/port forwarding setup.

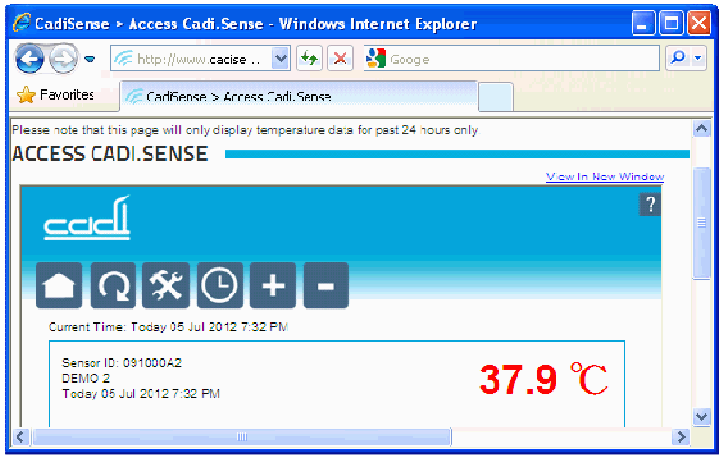

CadiSense > Access Cadi.Sense - Windows Internet Explorer
Favorites
CadiSense > Access Cadi.Sense
Please note that this page will only display temperature data for past 24 hours only.
ACCESS CADI.SENSE
View In New Window
Current Time: Today 05 Jul 2012 7:32 PM
Sensor ID: 091000A2
DEMO 2
Today 05 Jul 2012 7:32 PM
37.9 ℃

Figure 8. Cadi.Sense page with UPnP/port forwarding setup.

2.4 Setup III (Advanced) – Performing port forwarding to access your SmartNode from outside your home

This setup enables you to view your SmartNode webpages from outside your home via the Internet.

Note(a): You do not need to perform this setup if you have been able to see Figure 8 in the previous setup.

Note(b): This section is for advanced users only.
DO NOT PROCEED IF YOU ARE NOT FAMILIAR WITH PORT FORWARDING.

Requirements:

1. You must first complete Setup 1 in Section 2.2 and Setup II in Section 2.3.
2. You will need to be physically at the place where your WiFi router is, and you will also need to know **your WiFi router's admin password**, if any. Check with your Internet service provider if you do not remember the password.

Step 1:

(You may skip this step if you already know the LAN IP address of your WiFi router.) Go to your mobile device's web browser and enter the LAN URL (see Section 2.3, Step 2). Click the "Advanced settings" icon , "MENU" icon, "More Settings" icon, and then the "IP Settings" icon. Record the following information shown on the screen:

Gateway: _____
(this is the LAN IP address of your WiFi router)

Step 2:
Go to your mobile device's web browser, enter the LAN IP address of your WiFi router, and then type in your WiFi router's admin password, if any.

Step 3:
Find the UPnP setting and enable it. (*Note: Some routers may not have this feature.*) You may have to reboot your WiFi router for the setting to take effect (check your WiFi router's manual). You may have to reboot the SmartNode by switching it off and on again; this reboot will take about 1 minute.

Step 4:
If the UPnP feature is not available or not working, you will have to carry out manual port forwarding. Basically, the objective of manual port forwarding is to instruct your WiFi router to allow external (outside home) access of your SmartNode. Different routers may have different ways and names for carrying out port forwarding (also called virtual server), but the main information to be keyed into your WiFi router is similar:

(1) **Device IP Address** (also called Local IP): the LAN URL (see Section 2.3, Step 2), which is the LAN IP address of the SmartNode

(2) **Public Port** (also called external port): **50000**

(3) **Private Port** (also called internal port, local port, or host port): **80**

(4) **Protocol**: **TCP**

(5) **Enable**: **Yes**

Note (a): See Section 4.5 ("More about port forwarding") for details on several different WiFi routers.

Note (b): You may have to reboot your WiFi router for the settings to take effect (please check with your WiFi router's manual). You may have to reboot the SmartNode by switching it off and on again; this reboot will take about 1 minute.

2.5 Understanding the SmartNode LEDs

- **Power LED**: lights up when power is on.
- **Sensor LED**: lights up when sensor is transmitting readings and within the wireless reception range (3 to 5 m) for the past 5 minutes.
- **WiFi LED**: lights up when the SmartNode WiFi is ready for connection to mobile devices. Blinks when there is WiFi activity.
- **WPS/CadiSense.com LED**: lights up when the SmartNode is connected to the Internet and www.cadisense.com for the past 5 minutes.

Note: The WPS/CadiSense.com LED is also a button. Once you press and hold the button for 5 seconds and then release it, WPS (WiFi Protected Setup) will be initiated and the LED will start blinking. If the WPS button on your WiFi router (if available) is also pressed within 2 minutes, the wireless connection between the SmartNode and your WiFi

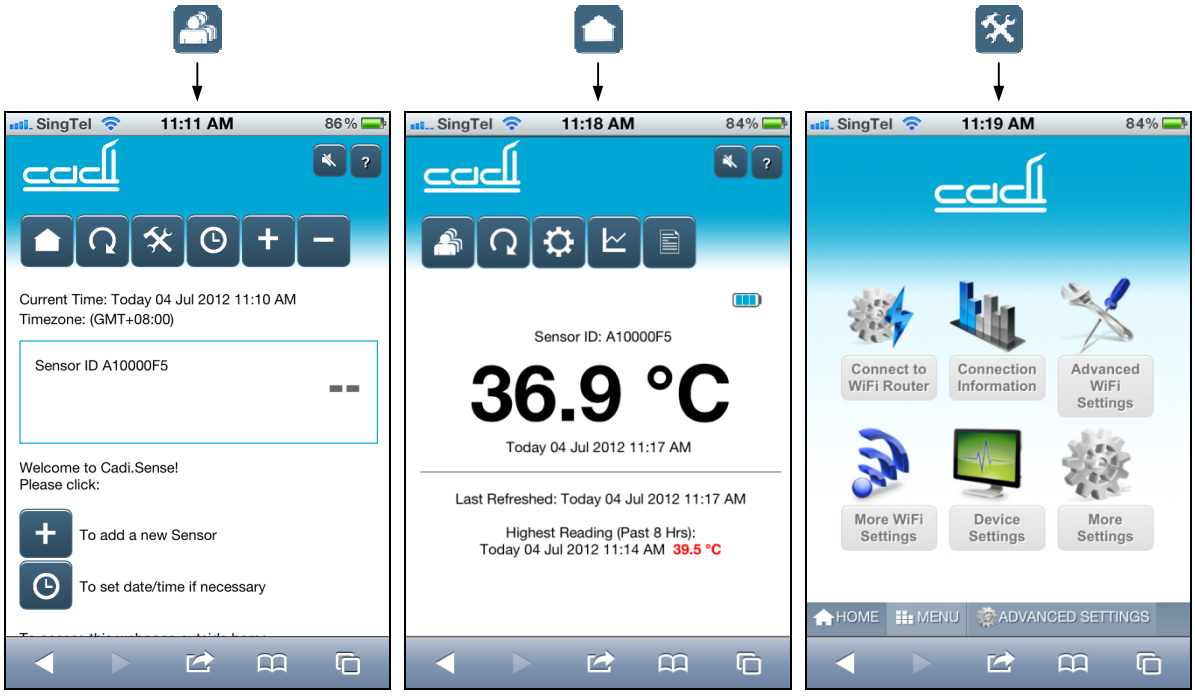
router will be set up automatically in about 3 minutes. However, your SmartNode SSID and password will be changed to your WiFi router's SSID and password, so it is NOT ADVISABLE to do a WPS connection.

2.6 Understanding the Cadi.Sense icons on your SmartNode webpages

	Go to home page (temperature monitoring page): View a single sensor temperature in large font size.
	Refresh: Manually refresh the current page to get the latest temperature. The page will actually refresh automatically every 5 minutes.
	Advanced settings: View a list of all advanced settings, including connecting to your WiFi router.
	Set timezone, date & time: Manually set the timezone, date, and time if necessary.
	Add ThermoSensor: Add a new sensor. Concurrent monitoring of several persons at the same time is possible, so long as each person wears a sensor and the sensors are within the wireless reception range (3 to 5 m) of the SmartNode.
	Remove ThermoSensor: Remove a sensor. All data associated with the sensor will be deleted. So before deleting, you may want to export the data using the "Export Temperature History Data" icon that will be available only in laptop's web browser.
	Go to main page (sensor details page): View a list of all registered sensors.
	Sensor settings: (1) Type in the name/nickname of the person wearing the sensor (default: empty). (2) Set the temperature scale to °C (degree Celsius, default) or °F (degree Fahrenheit). (3) Set the "High Temperature Threshold" (default: 37.8 °C). For some countries, this threshold is fixed at the default value and cannot be changed. (4) Turn on/off the "Message Alert" (default: OFF). If this alert is turned on, a message will be displayed whenever the temperature exceeds the threshold. For some countries, this feature is turned off permanently and cannot be turned on.
	Temperature chart: View the temperature graph. The chart will appear only 15 minutes after the first record is stored.
	Temperature history: View a list of temperature records. The records will appear in about every 15-minute interval. Readings below 32.1 °C will be shown as "Lo", and readings above 42.0 °C will be shown as "Hi".
	Export temperature history data: Export data (temperature and date-time) in ".csv" format for your further analysis on spreadsheets. This feature is available only from a laptop's web browser.
	Shift forward 12 hours: Shift the temperature chart/history forward by 12 hours. Note that the temperature chart/history will show a 24-hour period, with the default period being the current day from 00:00 to 23:59.
	Shift backward 12 hours: Shift the temperature chart/history backward by 12 hours.
	Jump to date: Shift the temperature chart/history to a date of your choice.

	Audio Alert OFF: Press this icon to turn on the "Audio Alert" (default: OFF). If this alert is turned on, a sound will be played whenever the temperature exceeds the threshold. For some countries, there is no audio alert. This icon appears only on iPhones.
	Audio Alert ON: Press this icon to turn off the "Audio Alert". For some countries, there is no audio alert. This icon appears only on iPhones.

Click these icons and you will see the following screens:

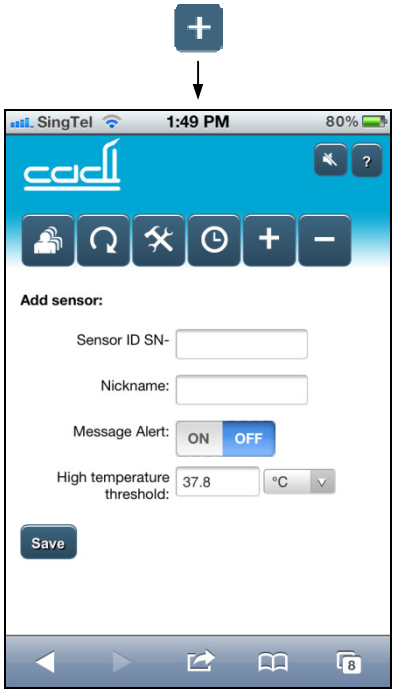


Main page (sensor details)

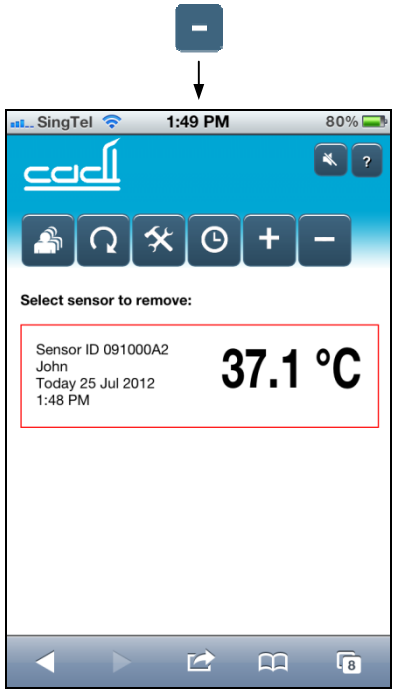
Home page (temperature monitoring)

Advanced settings menu

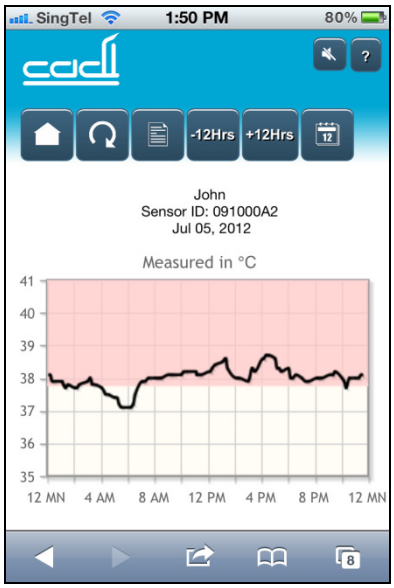
Setting date, time, and timezone



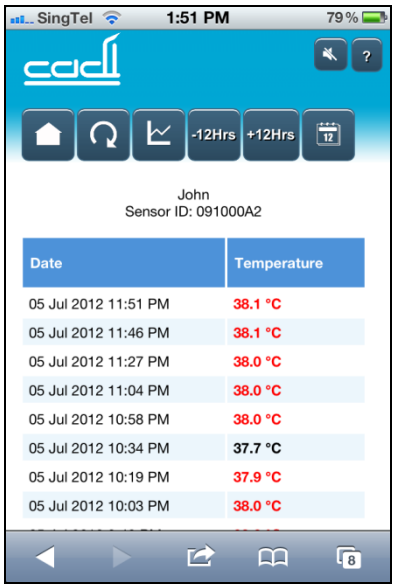
Add sensor (by entering sensor ID)



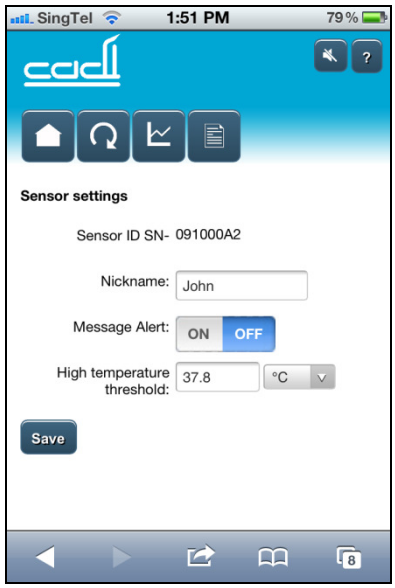
Remove sensor (by clicking inside the red box)



Temperature chart



Temperature history

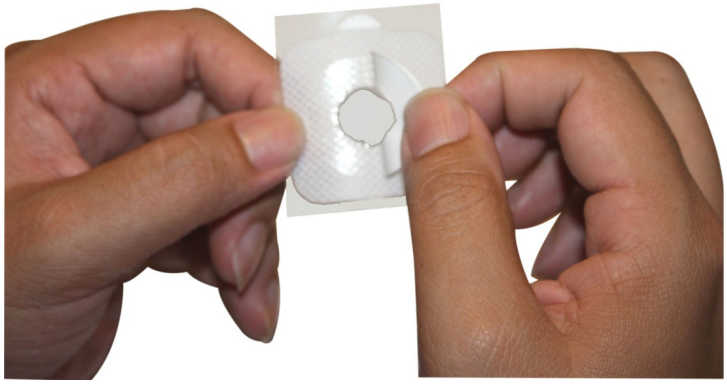


Sensor settings (name, alert, °C or °F, temperature threshold)

2.7 How to attach the ThermoSensor

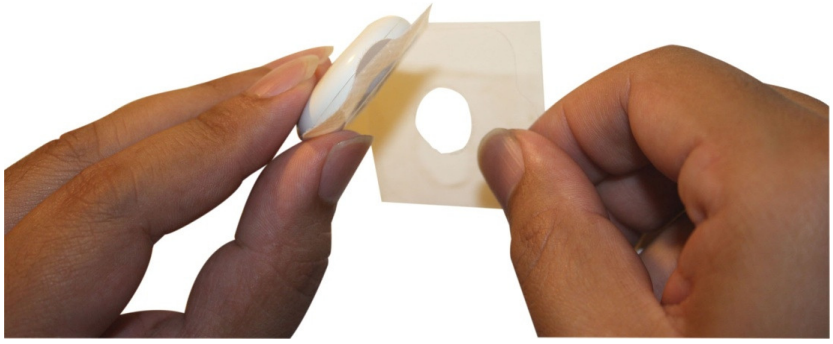
Step 1:
Apply a small amount of body lotion on the left or right side of the lower abdomen.

Step 2:
Take a Stick-On and peel off the round paper liner to expose the adhesive.



Step 3:
Stick the ThermoSensor on the adhesive, with the metal part facing outward and away from the adhesive.

Step 4:
Remove the rectangular backing liner to expose the adhesive.



Step 5:

Stick the exposed adhesive to the inside of the diaper/undergarment in such a position that the sensor's metal part will touch the lower abdomen (left or right) when the diaper/undergarment is properly worn.

Note: For accurate temperature readings, the sensor must touch the left or right side of the lower abdomen at all times during monitoring.

The ThermoSensor may take about 30 minutes to warm up from room temperature to body temperature. A temperature reading is sent wirelessly every 30 seconds to your SmartNode, and this reading will be converted into an equivalent body temperature, which will appear on your mobile device or computer.

2.8 How to clean and store the ThermoSensor and the SmartNode

Step 1:

After each use, peel the Stick-On off the diaper/undergarment and then peel the Stick-On off the sensor.

Step 2 (important):

Clean the sensor with a soft cloth moistened with alcohol, and put the sensor back into the storage case to switch off the sensor. The metal part of the sensor should face down and the barcode side should face up. Make sure that the sensor fits nicely into the storage case and you are able to close the cap of the case. **This step will ensure that the sensor switches off completely, saving battery power and making your sensor last longer!**

Step 3:
Clean the SmartNode with a soft cloth moistened with alcohol.

Step 4:
Place both the SmartNode and the ThermoSensor with its storage case in the original package, and store the package in a cool, dry place and keep it out of reach of babies and young children.

Note: When the SmartNode is not being used for temperature monitoring, you may wish to use it as a wireless extender. See Section 4.6 ("More about the SmartNode") for more details.

3. Advanced features

3.1 Changing the SmartNode password

If you have completed both Setup 1 (Section 2.1) and Setup II (Section 2.3), go to your mobile device's web browser and enter the LAN URL which you recorded in Step 2 of that section. Click the "Advanced Settings" icon, "MENU" icon, "More WiFi Settings" icon, and then the "Security" icon. Type the new password in the "WPA Passphrase" box, and then click "Apply". The password change should complete within 1 minute.

If you have completed only Setup 1 (Section 2.1), go to your mobile device's web browser and enter "http://10.10.10.10/main.asp". Click the "Advanced Settings" icon, "MENU" icon, "More WiFi Settings" icon, and then the "Security" icon. Type the new password in the "WPA Passphrase" box, and then click "Apply". The password change should complete within 1 minute.

Note: After you have changed the SmartNode password, your mobile device will not be connected directly to your SmartNode anymore. However, you will still be able to access your SmartNode via your WiFi router by using the LAN URL which you recorded in Step 2 of Section 2.3. If you wish to connect your mobile device directly to the SmartNode, you will need to perform Setup I (Section 2.1) again.

3.2 Resetting the SmartNode

Warning: All data will be deleted after this hardware reset.
Therefore, before resetting, you may want to export the data using the "Export temperature history data" icon that will be available only from your laptop's web browser.

Step 1:
Make sure the SmartNode is switched on for at least 1 minute. Take a paperclip and bend the tip outwards. Use the tip to press down and **hold for 10 seconds** the small round "hole" situated just next to the LAN socket on the SmartNode, and then release it. You will know that the resetting process has been activated when all the LED lights, except the Power light, go off about 20 seconds after you release the paperclip. The SmartNode will reset and reboot in about 1 minute.

Note: Resetting the SmartNode will restore all settings and configuration to the factory defaults, except that:

- *any upgraded firmware will stay and not revert to the previous version; and*
- ***any registered sensor will be deleted**, so you will need to manually add the sensor using the "Add ThermoSensor" icon after performing this hardware reset.*

3.3 Upgrading the SmartNode firmware

Note: This upgrading is for advanced users only.
DO NOT PROCEED IF YOU ARE NOT FAMILIAR WITH FIRMWARE UPGRADING.

***Warning: All data may be deleted after this firmware upgrade.** Therefore, before upgrading, you may want to export the data using the "Export temperature history data" icon that will be available only from your laptop's web browser.*

Requirement:
You will need a laptop that is connected to the Internet.

Step 1:
Go to www.cadisense.com, click "FAQ", and download the latest firmware. The firmware typically appears as a file with extension ".img".

Note: The webpage from which you download the firmware provides alternative instructions for resetting the SmartNode, so it is advisable to keep this page open.

Step 2:
Connect your laptop to the SmartNode physically using a LAN cable, which is provided in your Cadi.Sense package.

Step 3:
Go to your laptop's web browser and enter "http://10.10.10.10/main.asp". Click the "Device Settings" icon. In the second row of the menu bar, click the forth icon named "Firmware Upgrade". Click the "Browse" button and select the filename of the firmware that you have downloaded in Step 1. Then click "Apply".

Note: The SmartNode may take about 5 minutes to upgrade the firmware.

Step 4:
Reset the SmartNode (this is important!), by following the instructions in Section 3.2 or those on the webpage from which you downloaded the firmware.

Step 5:
Reboot the SmartNode by switching it off and on again. The reboot will take about 1 minute.

Step 6:
Remove the LAN cable.

4. Others

4.1 Troubleshooting and frequently asked questions (FAQ)

Concerning the ThermoSensor

1. **Why do we place the ThermoSensor on the left or right side of the lower abdomen and not elsewhere?**

   It is well known that the temperature of blood in a major artery closely reflects body temperature, so measuring temperature from an area close to a major artery will give readings that are more accurate than those measured from an area far from a major artery. We recommend measuring temperature from the middle of the left or right lower abdomen because that area is near a major artery called the external iliac artery.

2. **How do I know whether the ThermoSensor is working?**

   Once the ThermoSensor is removed from its storage case, the LED light will blink about every 5 seconds. If it is not blinking, the sensor is likely to have run out of battery or to be faulty. In that case, contact Technical Support to purchase a replacement.

3. **The ThermoSensor is in the correct position but the temperature seems to be lower than expected. Why?**

   - Whenever a ThermoSensor is in contact with the skin, it will take about 30 minutes to give an accurate temperature reading.
   - If the ThermoSensor is not held closely against the skin, the temperature reading will generally be lower than normal. Do ensure that the sensor is properly in contact with the skin.
   - If the ThermoSensor is not correctly positioned, the temperature reading will generally be lower than normal.
   - The ThermoSensor may give lower readings for obese people because the thicker layer of tissue between the iliac artery (see FAQ #1) and the skin surface may affect the transmission of heat from the artery to the skin surface. If you suspect this is happening, we recommend that you check your child's temperature with an ear thermometer, note the difference between the ear reading and the ThermoSensor reading, and then lower the ThermoSensor fever threshold of 37.8 °C by this difference.
   - If the above instructions do not answer your concerns, please contact Technical Support for assistance.

Concerning the Cadi.Sense software application

4. **I am unable to log in to http://www.cadisense.com. Why?**

   Make sure you are connected to the Internet. Try to access other websites (e.g., www.google.com) to check your Internet connection.

5. Why is there no current temperature on the Cadi.Sense website?

Click the "Refresh" icon, and check the "Last Refreshed Time" to ensure that the Cadi.Sense web page has really been refreshed. Note that both the times, stated below the temperature and last refreshed time, are based on our server time. Two dashes for temperature reading means that no readings have been recorded for the past 30 minutes. Note that the Temperature History will show the highest reading received for each 15-minute interval, so if all the readings are received, you should see 4 readings for each hour.

If the above does not work, ensure that the SmartNode is plugged near the person wearing the ThermoSensor, so that the ThermoSensor is within the wireless reception range (3 to 5 m) of the SmartNode. If you still cannot see the current temperature reading, please contact Technical Support for assistance.

6. Can I monitor my child's temperature from more than one mobile device or computer?

Yes, as long as you have Internet access you can monitor your child's temperature from any mobile device or computer anytime, anywhere. See Section 2 for appropriate setup.

4.2 Getting technical support

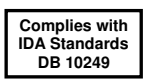
To contact Technical Support,
please call Cadi.Sense Support Hotline at **+65 62762676**
or send e-mail to **cadisense@cadi.com.sg**

4.3 Standards compliance

The Cadi.Sense meets the following standards:

- ISO 13485 (Quality management system)
- EN 60601-1 (Electrical safety)
- EN 60601-1-2 (Electromagnetic compatibility)
- EN 12470-4 (Thermometer performance)
- ISO 14971 (Risk management)
- EN 980 (Symbols for labelling)
- EN 1041 (Information supplied by manufacturer)

Medical Device Safety Service GmbH
Schiffgraben 41
30175 Hannover, Germany



CADI SCENTIFIC PTE LTD
31 Ubi Road 1
#07-01A Aztech Building
Singapore 408694
www.cadi.com.sg

Note: The stick-on dressing is supplied by Shanghai Huyou Medical Electrode Ltd, 45 Lane 1398, Zhenchen Road, Baoshan, 200435 Shanghai, China.

4.4 Specifications

ThermoSensor specifications

Temperature	
Measuring range	32.0 °C to 42.0 °C
Out-of-range indications	<32.0 °C: LO >42.0 °C: HI
Accuracy	±0.20 °C (32.0 °C to 42.0 °C)
Resolution	0.10 °C
Radio	
Radio frequency (short range device)	868.4 MHz , 919.8 MHz, or 925 MHz, depending on countries
Rate of transmission	Sends temperature data approximately every 30 seconds
Transmission distance between ThermoSensor and SmartNode SMN-801	3 to 5 m (typical)
Power	
Internal battery (non-replaceable)	3 V
Battery life	• 60 days of continuous use, OR • 3 years of intermittent use, based on the following conditions: (a) 5 days of use every 3 months (b) ThermoSensor is kept properly in storage case when not in use
Mechanical	
Dimensions	36.8 mm (DIA) x 12.2 mm (HT)
Weight	12 g
Environment	
Operating ambient temperature range	20.0 °C to 35.0 °C
Storage ambient temperature range	10.0 °C to 50.0 °C
Relative humidity	15% to 95% (non-condensing)

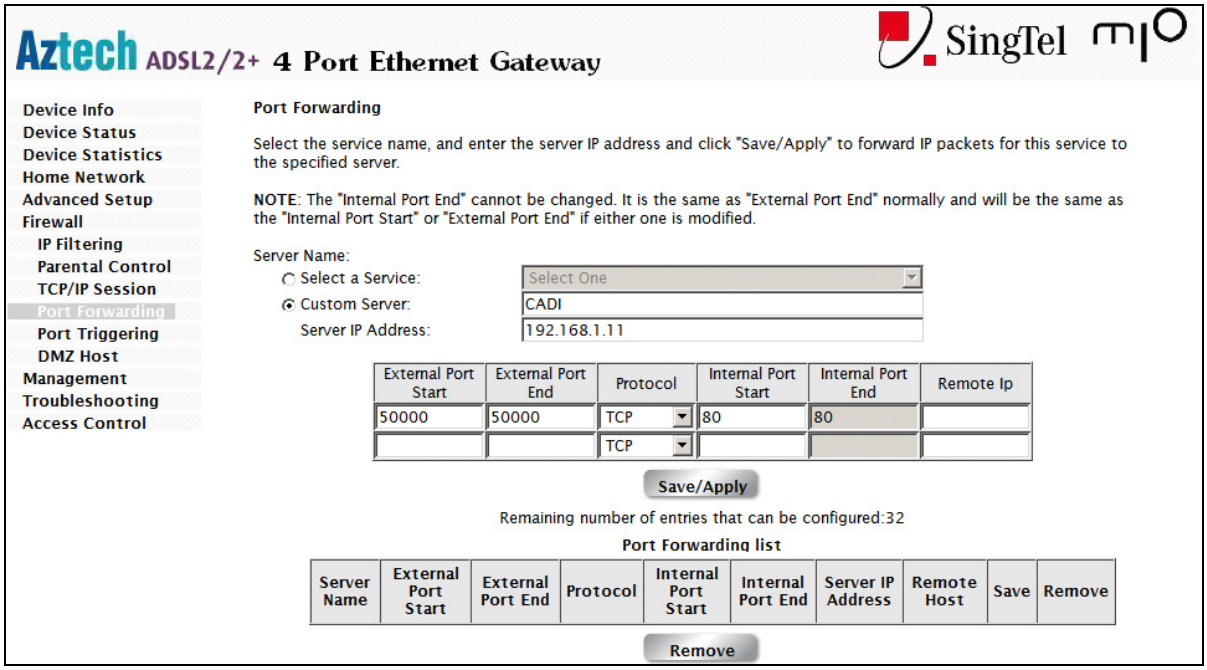
SmartNode specifications

Radio	
Radio frequency (short range device)	868.4 MHz , 919.8 MHz, or 925 MHz, depending on countries
WLAN	WiFi 802.11b/g/n
Interface	
Ethernet	1 x 10/100 Auto MDI/MDIX Ethernet Port
Power	
Input voltage	100–240 VAC, 50–60 Hz Maximum current: 0.12 A
Mechanical	
Dimensions	57 mm x 104 mm x 55 mm
Weight	165 g
Environment	
Operating ambient temperature range	0 °C to 40 °C
Storage ambient temperature range	–25 °C to 70 °C
Relative humidity	30% to 90% (non-condensing)

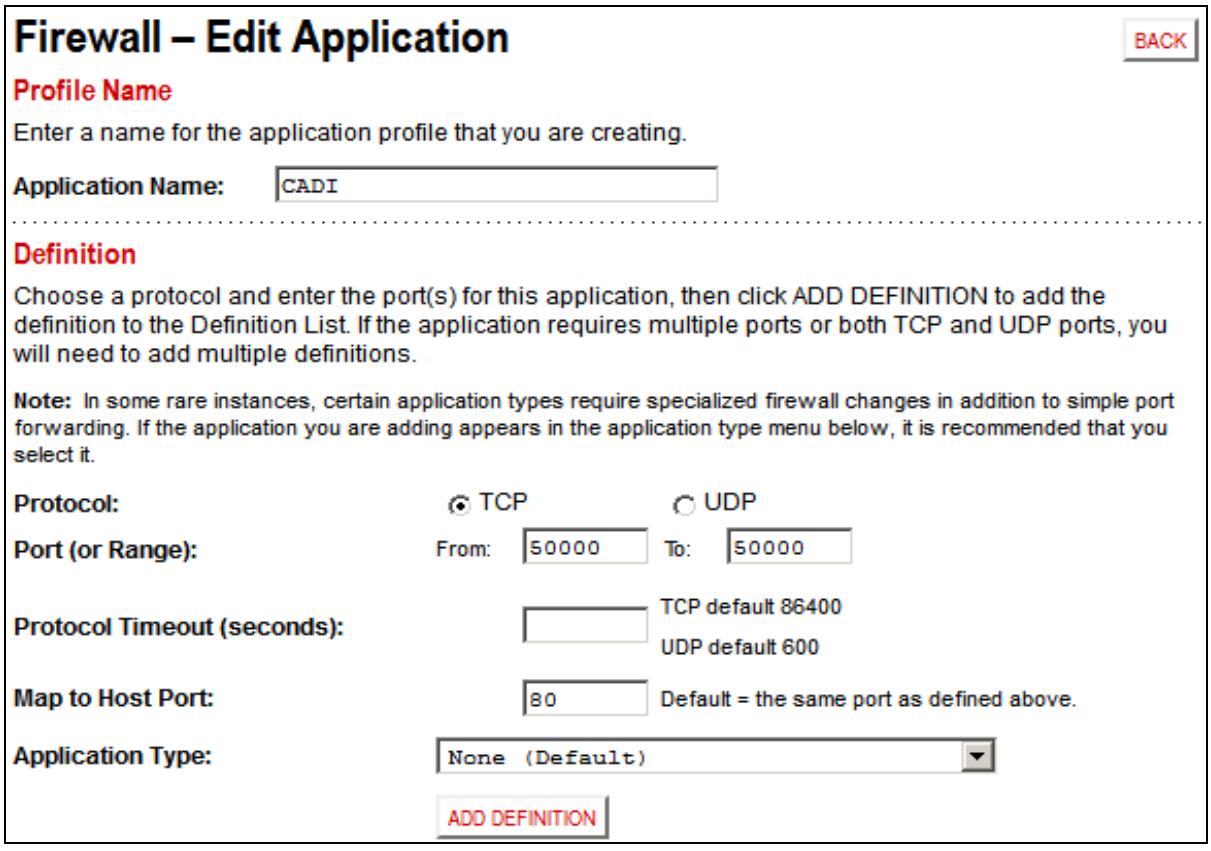
4.5 More about port forwarding

Port forwarding screens for the following WiFi routers are shown below:

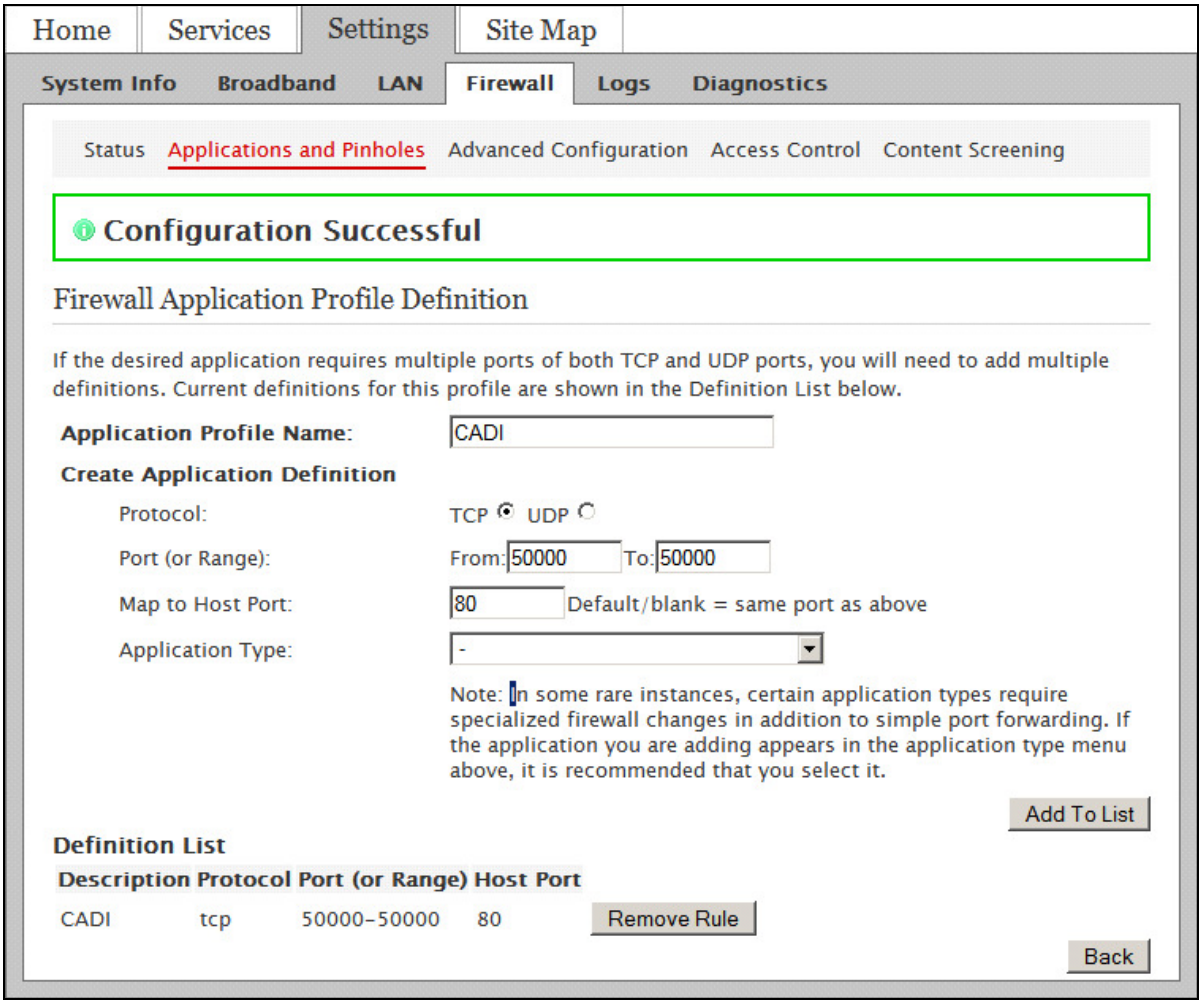
1. Aztech DSL1015EW(S) or DSL1000ER


Aztech ADSL2/2+ 4 Port Ethernet Gateway
SingTel mio
Device Info
Device Status
Device Statistics
Home Network
Advanced Setup
Firewall
IP Filtering
Parental Control
TCP/IP Session
Port Forwarding
Port Triggering
DMZ Host
Management
Troubleshooting
Access Control
Port Forwarding
Select the service name, and enter the server IP address and click "Save/Apply" to forward IP packets for this service to the specified server.
NOTE: The "Internal Port End" cannot be changed. It is the same as "External Port End" normally and will be the same as the "Internal Port Start" or "External Port End" if either one is modified.
Server Name:
Select a Service: Select One
Custom Server: CADI
Server IP Address: 192.168.1.11
External Port Start | External Port End | Protocol | Internal Port Start | Internal Port End | Remote Ip
50000 | 50000 | TCP | 80 | 80
TCP
Save/Apply
Remaining number of entries that can be configured:32
Port Forwarding list
Server Name | External Port Start | External Port End | Protocol | Internal Port Start | Internal Port End | Server IP Address | Remote Host | Save | Remove
Remove

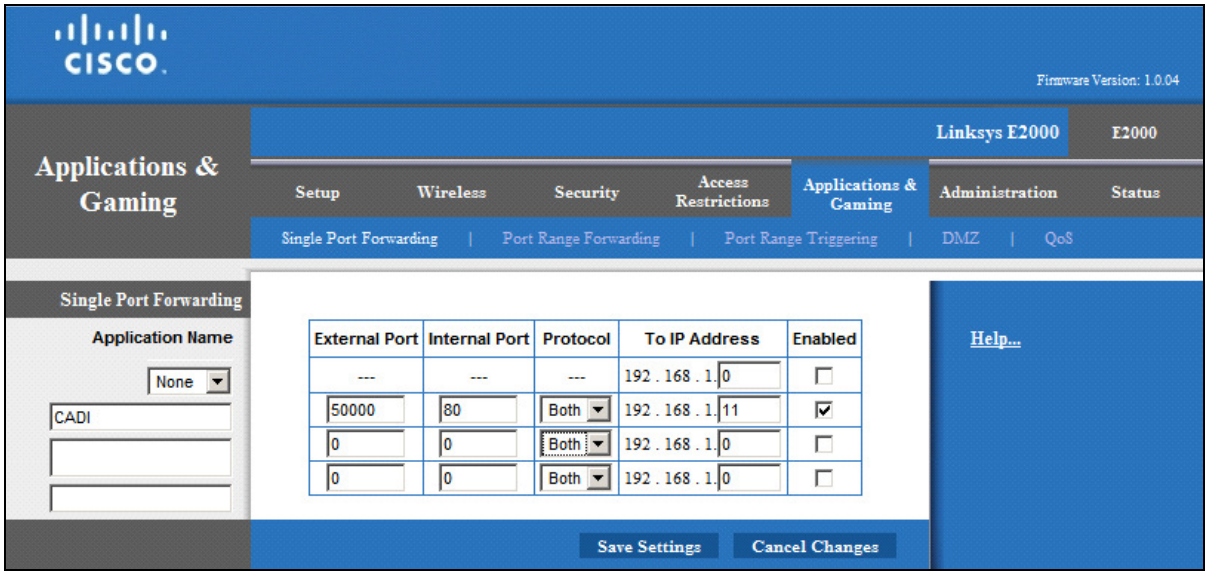
2. 2WIRE 5012NV


Firewall – Edit Application
BACK
Profile Name
Enter a name for the application profile that you are creating.
Application Name: CADI
Definition
Choose a protocol and enter the port(s) for this application, then click ADD DEFINITION to add the definition to the Definition List. If the application requires multiple ports or both TCP and UDP ports, you will need to add multiple definitions.
Note: In some rare instances, certain application types require specialized firewall changes in addition to simple port forwarding. If the application you are adding appears in the application type menu below, it is recommended that you select it.
Protocol: TCP UDP
Port (or Range): From: 50000 To: 50000
Protocol Timeout (seconds): TCP default 86400 UDP default 600
Map to Host Port: 80 Default = the same port as defined above.
Application Type: None (Default)
ADD DEFINITION

3. 2WIRE 2701HGV-E



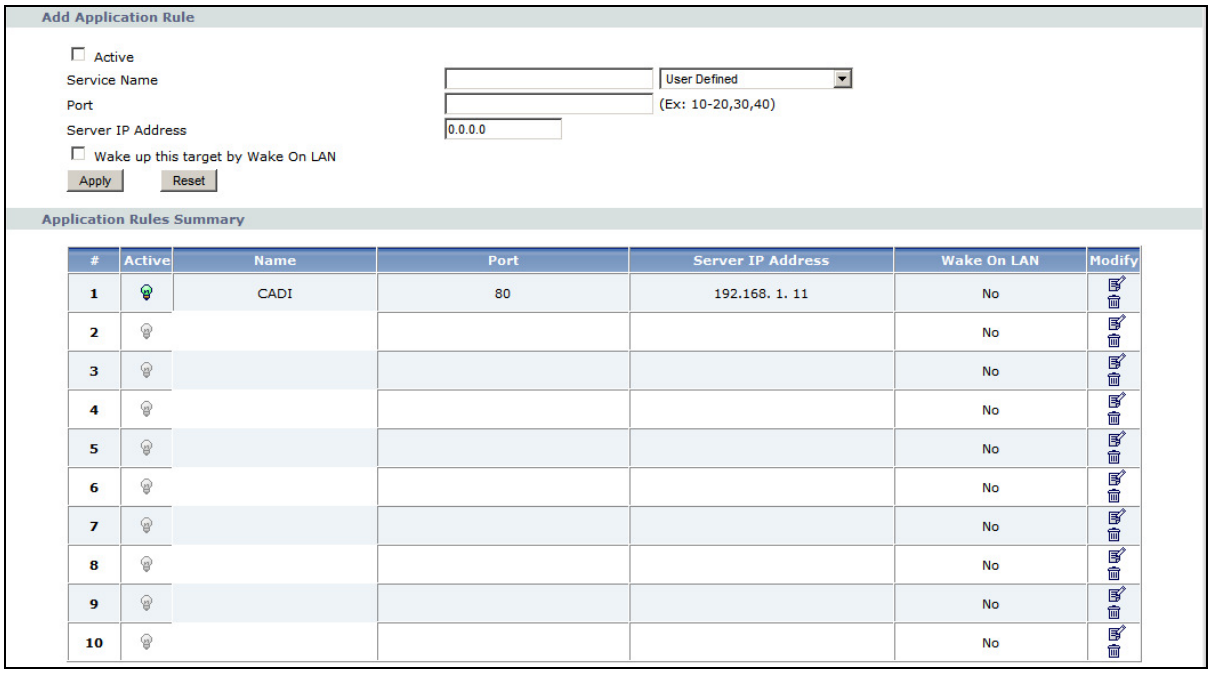
4. Linksys E2000



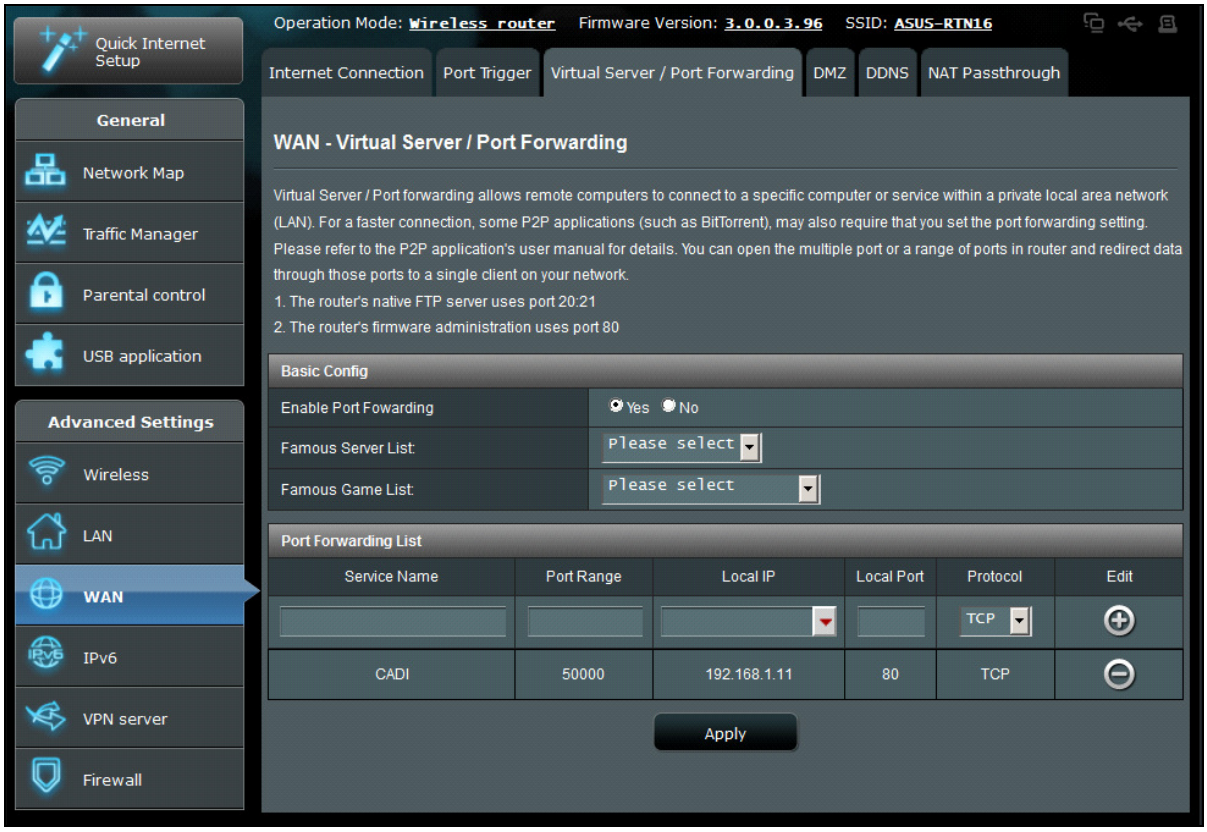
5. Dlink DIR 655

D-Link
DIR-655
SETUP
ADVANCED
TOOLS
STATUS
SUPPORT
VIRTUAL SERVER
PORT FORWARDING
APPLICATION RULES
QOS ENGINE
NETWORK FILTER
ACCESS CONTROL
WEBSITE FILTER
INBOUND FILTER
FIREWALL SETTINGS
ROUTING
ADVANCED WIRELESS
WISH
WI-FI PROTECTED SETUP
ADVANCED NETWORK
GUEST ZONE
English
VIRTUAL SERVER
The Virtual Server option allows you to define a single public port on your router for redirection to an internal LAN IP Address and Private LAN port if required. This feature is useful for hosting online services such as FTP or Web Servers.
Save Settings
Don't Save Settings
24--VIRTUAL SERVERS LIST
Port
Traffic Type
Name
CADI-WEB
Application Name
Public
50000
Protocol
TCP
Schedule
Always
IP Address
192.168.1.11
Computer Name
Private
80
6
Inbound Filter
Allow All
Helpful Hints...
Check the Application Name drop down menu for a list of predefined server types. If you select one of the predefined server types, click the arrow button next to the drop down menu to fill out the corresponding field.
You can select a computer from the list of DHCP clients in the Computer Name drop down menu, or you can manually enter the IP address of the computer at which you would like to open the specified port.
Select a schedule for when the virtual server will be enabled. If you do not see the schedule you need in the list of schedules, go to the Tools → Schedules screen and create a new schedule.
Select a filter that restricts the Internet hosts that can access this virtual server to hosts that you trust. If you do not see the filter you need in the list of filters, go to the Advanced → Inbound Filter screen and create a new filter.
More...

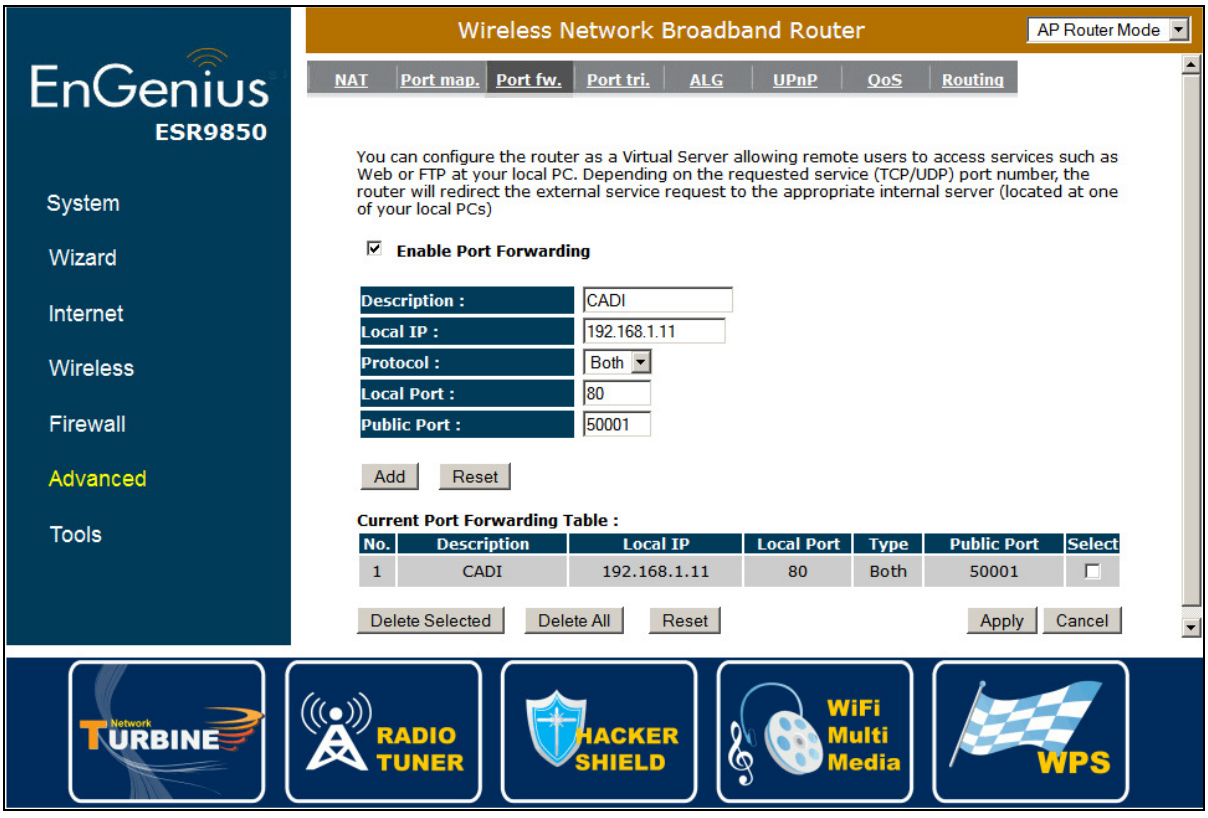
6. ZyXel



7. ASUS-RTN16



8. EnGenius ESR9850



4.6 More about the SmartNode

The SmartNode supports wireless 802.11b/g/n standards with one 10/100Base-T Ethernet port. It is designed with MIMO technology to extend the reach of any existing wireless router/AP to maximize the coverage in your home or office. It basically receives the signal from your wireless router/AP and repeats it to extend the range to farther locations that are previously unreachable. The device is equipped with 64/128-bit WEP, WiFi Protected Access (WPA), and the latest WPA2 encryption with TKIP and AES algorithm to protect your wireless network from unauthorized access. MAC Address Filtering for wireless links provides an additional layer of security for your wireless network. The device comes with 1 x 10/100M Auto MDI/MDIx Ethernet port that can be used to connect to an existing wired network to serve as a wireless access point (AP) or wireless bridge. It can also be used to configure the device via its web-based GUI, or upgrade the firmware when connected to the Network Interface Card of your PC.

Minimum system requirements

Your computer must meet the following minimum requirements:

- 233 MHz processor
- Web browser
- WiFi or Ethernet network adapter

Tips for placing the SmartNode

Before proceeding to configure your SmartNode, it is a good idea to identify the areas where you have good WiFi reception and weak or no WiFi signal at all. After this assessment, you may place the SmartNode between a location where you have good WiFi reception and a location where you have poor WiFi coverage. You will need to ensure that the SmartNode is placed in the same room where the patient will be resting, to ensure reception of temperature readings transmitted wirelessly by the ThermoSensor.

Placement of the SmartNode is crucial to getting the best possible results for extending your existing WiFi signal and, at the same time, ensuring wireless temperature readings are well received. It is desirable to place the SmartNode in a location where it can receive good WiFi signal from the WiFi router/access point (AP), so as to avoid disconnection and packet loss.

Configuring the SmartNode to connect to your WiFi router

Ensure to disable the WiFi connection on the PC or laptop used for configuring the SmartNode. Please note that your WiFi router/AP and the SmartNode must be on the same WiFi channel.

To configure the SmartNode to connect to your WiFi router:

- Plug in the SmartNode to a power socket and switch it on. (*Note: The SmartNode takes about 30 seconds to start up.*)
- Connect the SmartNode to your PC/laptop using an Ethernet cable.
- Once a connection is established, your PC/laptop will receive an IP address and you can start the configuration using your PC/laptop's web browser, by entering: "http://10.10.10.10/main.asp". You will see the following screen:

- Click the "Connect to WiFi Router" icon. When a screen appears and asks "Please select your WiFi router", click your router's SSID, type in your router's password, and then click "Apply". Be patient as the SmartNode needs about 1 minute to connect to your WiFi router and about one minute to reboot. Click "Refresh" if you do not see your router's SSID on the list.

Note (a): After successful connection to your WiFi router, the SmartNode will remember the router's SSID and password, unless you have intentionally unmarked the default "Remember Settings" during the connection. So if you were to switch the SmartNode off and on again, it will automatically reconnect to your WiFi router in about 2 minutes.

Note (b): After successful connection to your WiFi router, you may not be able to use "http://10.10.10.10" to access your SmartNode anymore. Nonetheless you can still access it using the IP address assigned by your router.

Note (c): You may need to reboot your PC/laptop, or unplug the Ethernet cable and then plug it in again, to connect to the SmartNode. For certain brands of WiFi routers, you may need to enable "Enhanced Compatibility" if you are using Windows 7.

Using the SmartNode as a WiFi repeater

Once the WiFi connection between the SmartNode and your main router/AP is established, you can connect your WiFi devices like laptops and smartphones through the SmartNode SSID. These devices will obtain an IP address from the main AP/router and should be able to access the Internet from farther locations previously unreachable by your WiFi signal.

Configuring the SmartNode for use as a WiFi AP

The SmartNode can also be configured as a WiFi access point (AP) to turn a regular modem-router into a WiFi-capable networking device to connect WiFi-enabled devices such as laptops and smartphones.

To configure the SmartNode for use as a WiFi AP:

- Plug in the SmartNode to a power socket and switch it on. (*Note: The SmartNode takes about 30 seconds to start up.*)
- Connect the SmartNode to your modem-router using an Ethernet cable.
- You are now ready to access internet on your laptops and smartphones via WiFi. Simply turn on WiFi on your device and then connect it to the SmartNode using its SSID and password (PWD 8 chars), both of which can be found on the label on the SmartNode.

Changing WiFi settings

To change WiFi settings:

- Open your PC/laptop's web browser and enter "http://10.10.10.10/main.asp".
- Click the "More WiFi Settings" icon and you can change the settings as preferred. Click "Apply" to commit the changes.
- Click the "More WiFi Settings" icon and then the "Security" icon in the second row, and change the settings as preferred. Click "Apply" to commit the changes.

Note: If necessary, you may need to adjust the wireless profile on your computer to match the new settings.

Using WPS (WiFi Protected Setup)

WPS is an alternative and easier way to connect the SmartNode to your WiFi router or a wireless client.

To connect the SmartNode to your WiFi router/AP via WPS:

- Press the WPS button on the SmartNode for 5 seconds to activate WPS Enrollee mode.
- Press the WPS button on your WiFi router/AP within 2 minutes. The 2 devices should then associate with each other automatically within 2 minutes.

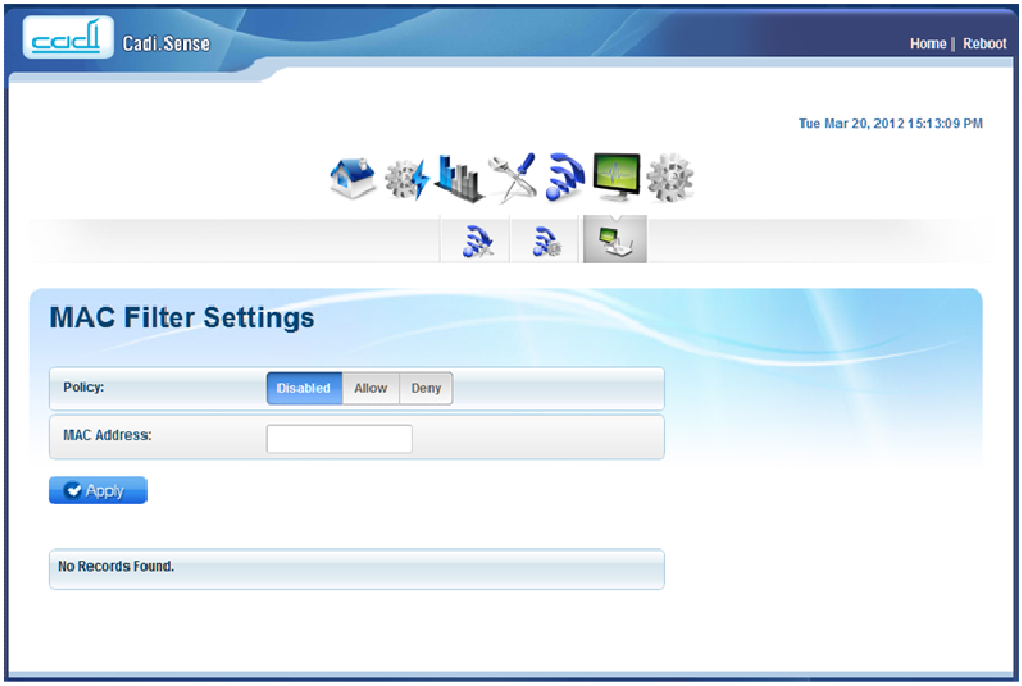
To connect a wireless client to the SmartNode via WPS:

- Press the WPS button on the SmartNode for 2 seconds to activate WPS Registrar mode.
- Press the WPS button on your wireless client within 2 minutes. The 2 devices should then associate with each other automatically within 2 minutes.

Configuring wireless MAC filtering

Wireless MAC Filtering allows you to select which wireless clients to allow or deny access to the Wireless-N Range Extender. To configure wireless MAC filtering:

- Open your PC/laptop's web browser and enter http://10.10.10.10/main.asp.
- Click the "More WiFi Settings" icon and then the "MAC Filter" icon in the second row, and you can select "Allow" or "Deny" from the "Policy" drop-down box and enter the MAC address of the wireless client you wish to allow/deny access to the SmartNode. Click "Apply" to commit the changes.



Reboot

Reboot allows you to reboot the device for new settings to take effect.

Device settings

Device Settings includes the following options:

- Device information
- IP address (LAN configuration)
- Settings backup (configuration settings)
- Firmware upgrade
- Password (system password)

Device information

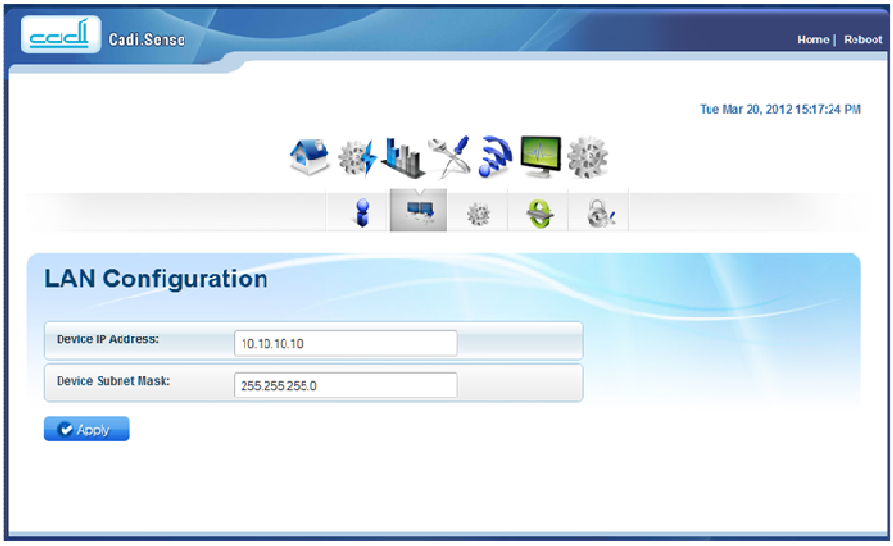
This page shows the device information. Below is the list of information shown in this menu.

Firmware Version	– Shows the current firmware version of the device
Build Date	– Shows the firmware release date
Serial Number	– Shows the serial number of the device
ETH MAC Address	– Shows device's Ethernet interface MAC address
Wireless MAC Address	– Shows device's wireless interface MAC address
Wireless Status	– Shows the status of the wireless interface.

IP address (LAN configuration)

This page allows you to change the IP address of the SmartNode.

NOTE: You may change the IP address of the SmartNode to an IP address within the same subnet of your existing network. This will allow you to access SmartNode webpages even after the SmartNode is associated with your WiFi router/AP. Just remember to reserve the assigned IP address on your router's DHCP server to prevent any IP conflict on your network.



Settings backup (configuration settings)

This page allows you to back up and restore the current device configuration, as well as to reset the device to its factory default settings.

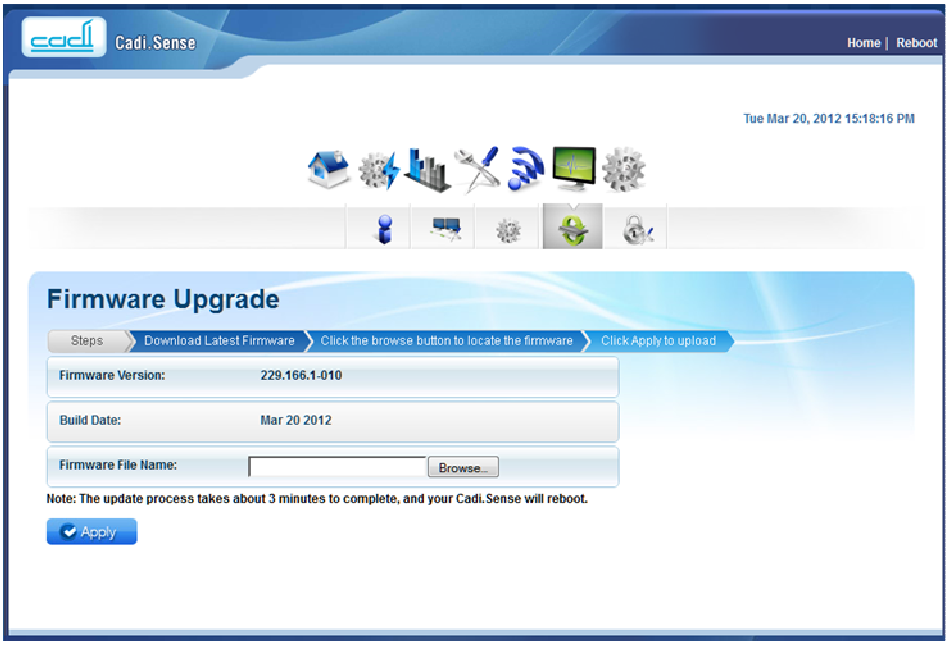
Backup – To back up the current configuration of the device to a file
Update – To restore a configuration file to the device
Restore – To reset the device to factory default settings

Firmware upgrade

The firmware menu allows you to see the current firmware version and build date, as well as upgrade the firmware of the SmartNode.

Firmware Information – Shows the current firmware's version and build date
Firmware Upgrade – Load a new firmware upgrade file to the device

NOTE: Make sure you connect to the device via Ethernet cable when upgrading the firmware, so as to avoid corruption during the firmware upgrade procedure.



Password (system password)

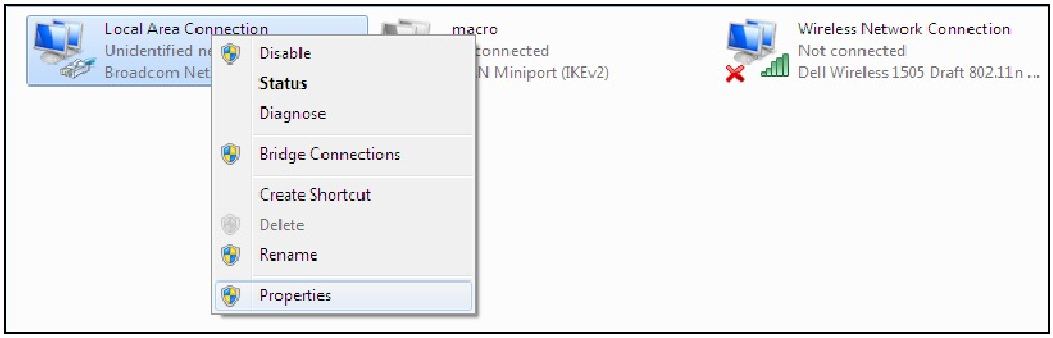
The password menu allows you to change the device's password to access SmartNode webpages.

Setting a static IP on your PC

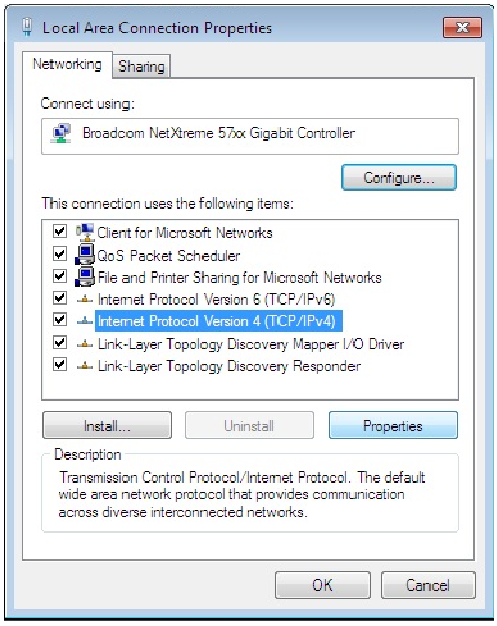
The SmartNode will only give an IP address to your PC upon initial installation. Once you have associated the SmartNode with your WiFi router/AP, you may no longer have access to the device's webpages. If you wish to change any settings on the SmartNode, you will need to set a Static IP address on your PC before you associate the SmartNode with your WiFi router/AP. Just remember to set it back to "Obtain an IP address automatically" on your PC after you are done.

To set a static IP address on your PC using Windows XP/Vista/7:

- Click "Start" and then "Control Panel".
- For Windows XP: click "Network and Internet Connections"
  For Windows Vista: click "Network and Sharing Center"
  For Windows 7: click "View Network Status and Tasks"
- For Windows XP: click "Network Connections"
  For Windows Vista: click "Manage Network Connections"
  For Windows 7: click "Change Adapter Settings"
- Right-Click the Network Adapter you will use to configure the SmartNode, and click "Properties".



- Click to select Internet Protocol Version 4 (TCP/Ipv4) ("TCP/IP" for Windows XP), and then click "Properties".



- Select "Use the following IP address:" and type in "10.10.10.20" as the IP address and "255.255.255.0" for the subnet mask. Leave the other fields blank.

- Click "OK" to commit the settings.

Note: Please remember to revert to "Obtain an IP address automatically" on your PC after you are done with changes to the SmartNode.